Index to
JOURNAL OF BASIC ENGINEERING

Volume 84, 1962

The Journal of Basic Engineering for 1962 was issued quarterly in March, June, September, and December.

Issue	Page Numbers
March	1–206
June	207–301
September	303–414
December	415–621

A

ABBOTT, D. E.
Experimental investigation of subsonic turbulent flow over single and double backward facing steps 317

ABERNATHY, F. H.
Flow over an inclined plate 380

ACOSTA, A. J.
Cavitation in turbopumps—Part 1 326

AERODYNAMICS. *See also* FLOW OF FLUIDS
Analysis of axial compressor cascade aerodynamics (errata) 619

ALLOYS
Low-temperature properties of K-Monel, Inconel-X, René 41, Haynes 25, and Hastelloy B sheet alloys 265
Notched-bar creep rupture of a cast heat-resistant alloy at temperatures where ductility is limited 233

ALUMINUM
Crack propagation in aluminum-foil laminates 257

ANDERSON, W. J.
Toroid contact roller test as applied to the study of bearing materials (D) 190

ANTIFRICTION BEARINGS
Fluid lubrication theory of roller bearing.
Part I: Fluid lubrication theory for two rotating cylinders in contact 166
Part II: Fluid lubrication theory applied to roller bearing 175
Toroid contact roller test as applied to the study of bearing materials 181

ARNBERG, B. T.
Performance characteristics of turbine flowmeters (D) 479
Review of critical flowmeters for gas flow measurements 447
Theoretical method of determining discharge coefficients for venturis operating at critical flow conditions (D) 445

ATTITUDE CONTROL. *See* SPACE VEHICLES

AUTOMATIC CONTROL. *See also* NONLINEAR SYSTEMS
Analysis of a bivariant optimizing control 410
Derived-rate increment stabilization: its application to the attitude control problem 54
Minimum time control of second order pulse-width-modulated sampled-data systems 101
On the existence of optimal controls 13
Optimal control methods for on-off sampling systems 91
Optimal pursuit strategies in discrete-state probabilistic systems 23
Optimizing control of single input extremum systems 85
Optimum response of full third-order systems with contactor control 554
Structure of optimum control systems 1
Successive approximation technique for optimal control systems subject to input saturation 33
Switching criterion for certain time-optimal regulating systems 30

B

BALDUR, R.
Flow regimes in curved subsonic diffusers (D) 312

BEARING MATERIALS
Toroid contact roller test as applied to the study of bearing materials 181

BEARINGS. *See also* ANTIFRICTION BEARINGS, LUBRICATION
Analysis of bearings operating in turbulent regime 139
Analytical and experimental study of externally pressurized air lubricated journal bearings 150
Counterrotating journal bearings 110
Investigation of whirl in externally pressurized air-lubricated journal bearings 132
Magnetohydrodynamic slider bearing ... 197
Note on the lubrication of porous metal bearings 205
Note on the work done on the journal by the forces exerted by a compressible lubricant in a journal bearing 486
On the optimization of the stiffness of externally pressurized bearings 119
On the stability of rotors in cylindrical journal bearings 521
On the translatory whirl motion of a vertical rotor in plain cylindrical gas-dynamic journal bearings 152
Preliminary study of whirl instability for pressurized gas bearings 511
Rotor-bearing dynamics with emphasis on attenuation 491
Simulation of bearing whirl on an electronic-analog computer 503
Theoretical contributions to the study of gas-lubricated journal bearings 123

BECK, H. V.
Two-phase flow measurement with orifices (D) 432

BELL, J. C.
Nonlinear viscosity effects in slider bearing lubrication (D) 195

BERGMAN, ELMER O.
Design of pressure vessels for low-cycle fatigue (D) 399

BLAND, RICHARD E.
Schlieren method applied to flow visualization in a water tunnel 587

BOGEMA, MARVIN
Quadrant edge orifice performance-effect of upstream velocity distribution 415

BOUNDARY LAYER
Viscosity and boundary effects in the dynamic behavior of hydraulic systems (pistons) 593

BOYER, R. C.
Effects of extra sinusoidal inputs to nonlinear systems 559

BROWN, F. T.
Surge pressures in liquid transfer lines (D) 366
Transient response of fluid lines 547
Viscosity and boundary effects in the dynamic behavior of hydraulic systems (pistons) (D) 600

BROWN, W. F., JR.
New investigations relating to stress concentrations under creep conditions (summary of session) 243

BRUNNER, WALTER
Structure of optimum control systems (D) 11

C

CAMS
Design of apparatus for constant-stress or constant-load creep tests 287

CANNON, ROBERT H., JR.
Gyroscopic coupling in space vehicle attitude control systems 41

CASCADES. *See* AERODYNAMICS

CAVITATION
Cavitation in turbopumps
Part 1 326
Part 2 339

CAVITATION (*continued*)
Effect of cavitation on the accuracy of Herschel-type venturi tubes 351
On cavitation produced by a vortex trailing from a lifting surface 369

CHISHOLM, D.
Two-phase flow measurement with orifices (D) 433

CHRISTIAN, J. L.
Low-temperature properties of K-Monel, Inconel-X, René 41, Haynes 25, and Hastelloy B sheet alloys 265

COFFIN, L. F., JR.
Experimental support for generalized equation predicting low cycle fatigue ... 533

COHEN, HIRSH
Viscosity and boundary effects in the dynamic behavior of hydraulic systems (pistons) 593

COMPRESSORS
Analysis of axial compressor cascade aerodynamics (errata) 619

COMPUTERS. *See also* ELECTRONIC ANALOGY
Gyroscopic coupling in space vehicle attitude control systems 41
Minimum time control of second order pulse-width-modulated sampled-data systems 101

CONSTANT-LOAD. *See* METAL TESTING—CREEP

CONSTANT-STRESS. *See* METAL TESTING—CREEP

CONSTANTINESCU, V. N.
Analysis of bearings operating in turbulent regime 139

CONTROL. *See* AUTOMATIC CONTROL, NONLINEAR SYSTEMS

COUPLING. *See* GYROSCOPES

COUTS, W. H., JR.
Notch rupture behavior as influenced by specimen size and preparation (at 1300 F) 223

CRACKS AND CRACK PROPAGATION. *See* STRESSES AND STRAINS

CSANADY, G. T.
Reconsideration of the annulus flow problem in axial turbomachinery (D) 585

CYCLONES
Analysis of the vortex flow in the cyclone separator 609
Experimental study of the vortex in the cyclone separator 602

CYLINDERS. *See also* ANTIFRICTION BEARINGS

D

DEFORMATION. *See also* METAL CREEP, STRESSES AND STRAINS

DESOER, CHARLES A.
Optimal control methods for on-off sampling systems (D) 99
Successive approximation technique for optimal control systems subject to input saturation (D) 37

DIFFUSERS. *See* FLOW OF FLUIDS

DOMIS, W. F.
Design of apparatus for constant-stress or constant-load creep tests 287

DONSKY, BENJAMIN
Surge pressures in liquid transfer lines (D) 367

DOWDELL, RODGER B.
Design and calibration of the lo-loss tube (D) 467

DUCTILITY. *See* METAL TESTING

DYNAMICS. *See* BEARINGS

(D) denotes Discussion of a paper.

E

EATON, J. H.
Optimal pursuit strategies in discrete-state probabilistic systems 23

ECKMAN, DONALD P.
Optimizing control of single input extremum systems 85

EFT, N. W.
Analysis of the vortex flow in the cyclone separator (D) 616

EHRICH, FREDRIC F.
Analysis of a bivariant optimizing control 410

ELCO, R. A.
Magnetohydrodynamic slider bearing (D) 203

ELDER, REX A.
Effect of cavitation on the accuracy of Herschel-type venturi tubes (D) 360

ELECTRONIC ANALOGY
Simulation of bearing whirl on an electronic-analog computer 503

ERDOGAN, FAZIL
Experimental investigation of the crack tip stress intensity factors in plates under cylindrical bending 542

F

FATIGUE OF MATERIALS. *See also* METAL FATIGUE
Experimental support for generalized equation predicting low cycle fatigue ... 533

FEEDBACK. *See* NONLINEAR SYSTEMS

FELGAR, R. P.
Plastic analysis of the instability of pressure vessels subjected to internal pressure and axial load 278

FERGUSON, J. F.
Use of a venturi tube as a quality meter ... 411

FINNIE, I.
Effect of radial heat transfer on the creep behavior of thick-walled tubes loaded by combined bending moment and internal pressure 412
Empirical creep law from a single test 236

FLOW OF FLUIDS. *See also* CAVITATION, FLUID METERS, WATER TUNNELS
Analysis of the vortex flow in the cyclone separator 609
Experimental investigation of subsonic turbulent flow over single and double backward facing steps 317
Experimental study of the vortex in the cyclone separator 602
Flow over an inclined plate 380
Flow regimes in curved subsonic diffusers. 303
Reconsideration of the annulus flow problem in axial turbomachinery 579

FLOW VISUALIZATION. *See* OPTICS

FLÜGGE-LOTZ, I.
Optimum response of full third-order systems with contactor control 554

FLUID METERS
Design and calibration of the lo-loss tube 461
Effect of cavitation on the accuracy of Herschel-type venturi tubes 351
Performance characteristics of turbine flowmeters 471
Quadrant edge orifice performance-effect of upstream velocity distribution 415
Review of critical flowmeters for gas flow measurements 447
Theoretical method of determining discharge coefficients for venturis operating at critical flow conditions 434
Two-phase flow measurement with orifices 419
Use of a venturi tube as a quality meter ... 411

FOIL. *See* ALUMINUM

FOX, R. W.
Flow regimes in curved subsonic diffusers. 303

FRACTURE. *See* STRESSES AND STRAINS

FRAIT, JOHN S.
Optimizing control of single input extremum systems 85

FRAZIER, M.
Successive approximation technique for optimal control systems subject to input saturation (D) 37

FREEMAN, J. W.
Notch rupture behavior as influenced by specimen size and preparation (at 1300 F) 222
Trends and implications of data on notched-bar creep rupture 207

FRIEDLAND, BERNARD
Structure of optimum control systems 1

FRISCH, J.
Crack propagation in aluminum-foil laminates 257

FUELS. *See also* NUCLEAR FUELS

(D) denotes Discussion of a paper.

G

GAROFALO, F.
Design of apparatus for constant-stress or constant-load creep tests 287

GAS LUBRICATION. *See* BEARINGS

GASES. *See also* FLUID METERS

GATTS, R. R.
Cumulative fatigue damage with random loading 403

GIBSON, J. E.
On the periodic modes of oscillation in pulse-width-modulated feedback systems (D) 81

GILMAN, F. C.
Flow regimes in curved subsonic diffusers (D) 313

GOLDHOFF, R. M.
Notch rupture behavior as influenced by specimen size and preparation (at 1300 F) (D) 225

GREENERT, W. J.
Toroid contact roller test as applied to the study of bearing materials 181
Performance characteristics of turbine flowmeters (D) 480

GROSS, W. A.
Analytical and experimental study of externally pressurized air lubricated journal bearings (D) 165
Investigation of whirl in externally pressurized air-lubricated journal bearings. 132
On the stability of rotors in cylindrical journal bearings 531
Preliminary study of whirl instability for pressurized gas bearings (D) 518

GYROSCOPES
Gyroscopic coupling in space vehicle attitude control systems 41

H

HALKIN, HUBERT,
Optimum response of full third-order systems with contactor control (D) 557

HALL, G. W.
Review of critical flowmeters for gas flow measurements (D) 458

HANINK, DEAN K.
Notched-bar creep rupture of a cast heat-resistant alloy at temperatures where ductility is limited 233

HAYS, D. F.
Simulation of bearing whirl on an electronic-analog computer (D) 508

HEAD, A. K.
Cumulative fatigue damage with random loading (D) 409

HEAD, V. P.
Performance characteristics of turbine flowmeters (D) 482

HEAT TRANSFER. *See* METAL CREEP

HERZOG, J. A.
Trends and implications of data on notched-bar creep rupture 207

HIGH-TEMPERATURE MATERIALS. *See* ALLOYS

HIGH-TEMPERATURE RESEARCH. *See* METAL TESTING, STEEL ALLOYS

HO, YU-CHI
On the existence of optimal controls (D) .. 21
Successive approximation technique for optimal control systems subject to input saturation 33

HOJO, HIDEMITSU
Effect of a "V" notch on the tensile creep behavior of Cr-Mo steel 214

HOLL, J. WILLIAM
On cavitation produced by a vortex trailing from a lifting surface (D) 378

HONIGSBERG, C.
Design of pressure vessels for low-cycle fatigue (D) 400

HOOPER, LESLIE J.
Design and calibration of the lo-loss tube 461

HOROWITZ, H. H.
Nonlinear viscosity effects in slider bearing lubrication (D) 195

HUGHES, W. F.
Magnetohydrodynamic slider bearing (D) 203

HUMAN ENGINEERING
Dynamics of human operator control systems using tactile feedback 297

HYDRAULIC MECHANISMS
Viscosity and boundary effects in the dynamic behavior of hydraulic systems (pistons) 593

HYDRAULIC TRANSIENTS. *See* PIPELINES

HYDRODYNAMICS. *See also* BEARINGS, HYDRAULIC MECHANISMS, MAGNETOHYDRODYNAMICS
Nonlinear viscosity effects in slider bearing lubrication 192

HYDRODYNAMICS (*continued*)
On cavitation produced by a vortex trailing from a lifting surface 369

HYDROFOILS. *See* HYDRODYNAMICS

J

JACOBS, R. B.
Use of a venturi tube as a quality meter ... 411

JENNINGS, U. D.
Simulation of bearing whirl on an electronic-analog computer 503

JOHNSTON, J. P.
Flow regimes in curved subsonic diffusers (D) 314

JURY, E. I.
On the periodic modes of oscillation in pulse-width-modulated feedback systems 71

K

KALMAN, R. E.
On the existence of optimal controls (D) .. 21

KAMITAMA, S.
Effect of cavitation on the accuracy of Herschel-type venturi tubes 351

KARLBY, HENNING
Performance characteristics of turbine flowmeters (D) 482

KATTO, Y.
Theoretical contributions to the study of gas-lubricated journal bearings 123

KLINE, S. J.
Experimental investigation of subsonic turbulent flow over single and double backward facing steps 317
Flow regimes in curved subsonic diffusers. 303

KOBAYASHI, R.
Effect of cavitation on the accuracy of Herschel-type venturi tubes 351

KRAFT, H.
Flow regimes in curved subsonic diffusers (D) 313

L

LAMINATES
Crack propagation in aluminum-foil laminates 257

LANGER, B. F.
Design of pressure vessels for low-cycle fatigue 389

LARSON, R. H.
Preliminary study of whirl instability for pressurized gas bearings 511

LASALLE, J. P.
On the existence of optimal controls (D) .. 22
Successive approximation technique for optimal control systems subject to input saturation (D) 37
Switching criterion for certain time-optimal regulating systems (D) 32

LEE, E. B.
On the existence of optimal controls 13

LEE, W. F. Z.
Performance characteristics of turbine flowmeters (D) 482

LEMON, JASON R.
Analytical and experimental study of externally pressurized air lubricated journal bearings 159

LEONDES, C. T.
Structure of optimum control systems (D) 12

LIAPUNOV METHODS. *See* MATHEMATICS

LING, MARVIN T. S.
On the optimization of the stiffness of externally pressurized bearings 119

LIU, F. F.
Performance characteristics of turbine flowmeters (D) 483

LOGAN, THOMAS
Effect of cavitation on the accuracy of Herschel-type venturi tubes (D) 361

LO-LOSS TUBES. *See* FLUID METERS

LOW-TEMPERATURE RESEARCH. *See* METAL TESTING—TENSION

LUBRICANTS AND LUBRICATION. *See also* BEARINGS
Analysis of bearings operating in turbulent regime 139
Fluid lubrication theory of roller bearing. Part I: Fluid lubrication theory for two rotating cylinders in contact 166
Part II: Fluid lubrication theory applied to roller bearing 175
Nonlinear viscosity effects in slider bearing lubrication 192
Note on the lubrication of porous metal bearings 205

LUND, J. W.
Rotor-bearing dynamics with emphasis on attenuation 491

M

MCCORMICK, B. W., JR.
On cavitation produced by a vortex trailing from a lifting surface 369
MAGNETOHYDRODYNAMICS
Magnetohydrodynamic slider bearing ... 197
MANJOINE, M. J.
Size effect on notched rupture time 220
MANSON, S. S.
Design of pressure vessels for low-cycle fatigue (D) 399
Experimental support for generalized equation predicting low cycle fatigue (D) 537
MARKUS, L.
On the existence of optimal controls 13
MATHEMATICS. *See also* NONLINEAR SYSTEMS
Contribution to Liapunov's second method: nonlinear autonomous systems 571
On the existence of optimal controls 13
Optimal pursuit strategies in discrete-state probabilistic systems 23
Optimum response of full third-order systems with contactor control 554
Successive approximation technique for optimal control systems subject to input saturation 33
Switching criterion for certain time-optimal regulating systems 31
MATZ, ROY J.
Theoretical method of determining discharge coefficients for venturis operating at critical flow conditions 434
MELAS, WILLIAM
Design and calibration of the lo-loss tube (D) 468
MELLOR, G. L.
Analysis of axial compressor cascade aerodynamics (errata) 619
Reconsideration of the annulus flow problem in axial turbomachinery 579
MERCKX, K. R.
Deformation of uranium under constant load and cyclic temperature 294
Mechanical models for tubular reactor fuel elements 247
METAL CREEP
Deformation of uranium under constant load and cyclic temperature 294
Effect of radial heat transfer on the creep behavior of thick-walled tubes loaded by combined bending moment and internal pressure 412
New investigations relating to stress concentrations under creep conditions 207
METAL FAILURES
Plastic analysis of the instability of pressure vessels subjected to internal pressure and axial load 278
METAL FATIGUE
Cumulative fatigue damage with random loading 403
Design of pressure vessels for low-cycle fatigue 389
Toroid contact roller test as applied to the study of bearing materials 181
METAL TESTING
Notch rupture behavior as influenced by specimen size and preparation (at 1300 F) 222
Size effect on notched rupture time 220
METAL TESTING—COMBINED STRESS
Plastic analysis of the instability of pressure vessels subjected to internal pressure and axial load 278
METAL TESTING—CREEP
Cumulative damage in creep-rupture tests of a carbon steel (at elevated temperatures) 239
Design of apparatus for constant-stress of constant-load creep tests 287
Effect of a "V" notch on the tensile creep behavior of a Cr-Mo steel 214
Empirical creep law from a single test 236
Influence of ductility on creep rupture under multiaxial stresses (at 1200 and 1400 F) 228
New investigations relating to stress concentrations under creep conditions .. 207
Notched-bar creep rupture of a cast heat-resistant alloy at temperatures where ductility is limited 233
Trends and implications of data on notched-bar creep rupture 207
METAL TESTING—FATIGUE
Experimental support for generalized equation predicting low cycle fatigue ... 533
METAL TESTING—PRESSURE—TENSION
Influence of ductility on creep rupture under multiaxial stresses (at 1200 and 1400 F) 228
METAL TESTING—TENSION. *See also* METAL TESTING—CREEP
Low-temperature properties of K-Monel, Inconel-X, René 41, Haynes 25, and Hastelloy B sheet alloys 265
METALLOGRAPHY
Low-temperature properties of K-Monel, Inconel-X, René 41, Haynes 25, and Hastelloy B sheet alloys 265
MINER, IRVING O.
Design and calibration of the lo-loss tube (D) 468
MORI, HARUO
Fluid lubrication theory of roller bearing.
Part I: Fluid lubrication theory for two rotating cylinders in contact 166
Part II: Fluid lubrication theory applied to roller bearing 175
MOTE, C. D., JR.
Crack propagation in aluminum-foil laminates 257
MOYAR, G. J.
Toroid contact roller test as applied to the study of bearing materials (D) 189
MURDOCK, J. W.
Two-phase flow measurement with orifices 419
MURPHY, J. J.
Design of pressure vessels for low-cycle fatigue (D) 400

N

NELSON, W. L.
Optimal control methods for on-off sampling systems 91
NG, C. W.
Nonlinear viscosity effects in slider bearing lubrication 192
NICKLAS, J. C.
Derived-rate increment stabilization: its application to the attitude control problem 54
NISHIMURA, T.
On the periodic modes of oscillation in pulse-width-modulated feedback systems 71
NONLINEAR SYSTEMS
Contribution to Liapunov's second method: nonlinear autonomous systems 571
Effects of extra sinusoidal inputs to nonlinear systems 559
On the periodic modes of oscillation in pulse-width-modulated feeback systems 71
Optimum response of full third-order systems with contactor control 554
Stability of a nonlinear feedback system in the presence of gaussian noise 61
NOTCH SENSITIVITY. *See* METAL TESTING, METAL TESTING—CREEP
NOTCH TESTING. *See* METAL TESTING, METAL TESTING—CREEP
NUCLEAR FUELS
Mechanical models for tubular reactor fuel elements 247
NUMACHI, F.
Effect of cavitation on the accuracy of Herschel-type venturi tubes 351

O

OCVIRK, F. W.
Simulation of bearing whirl on an electronic-analog computer 503
OKINO, NOBIO
Fluid lubrication theory of roller bearing.
Part I: Fluid lubrication theory for two rotating cylinders in contact 166
Part II: Fluid lubrication theory applied to roller bearing 175
OKRENT, E. H.
Nonlinear viscosity effects in slider bearing lubrication (D) 195
OLDENBURGER, RUFUS
Effects of extra sinusoidal inputs to nonlinear systems 559
Optimum response of full third-order systems with contactor control (D) 557
Stability of a nonlinear feedback system in the presence of a gaussian noise 61
ON-OFF CONTROL. *See Automatic* CONTROL
OPTICS
Schlieren method applied to flow visualization in a water tunnel 587
OPTIMUM CONTROL. *See* AUTOMATIC CONTROL, MATHEMATICS
ORIFICES. *See* FLUID METERS
OSCILLATION. *See* NONLINEAR SYSTEMS, VIBRATION
OSTERLE, F. ETCHER
Fluid lubrication theory of roller bearing.
Part II: Fluid lubrication theory applied to roller bearing (D) 180

P

PAN, C. H. T.
Note on the work done by the journal by the forces exerted by a compressible lubricant in a journal bearing (D) 489
On the translatory whirl motion of a vertical rotor in plain cylindrical gas-dynamic journal bearings 152
Preliminary study of whirl instability for pressurized gas bearings (D) 518
PARIS, PAUL C.
Crack propagation in aluminum-foil laminates (D) 264
Experimental investigation of the crack tip stress intensity factors in plates under cylindrical bending 542
PELICK, THOMAS J.
Schlieren method applied to flow visualization in a water tunnel 587
PHYSIOLOGY
Dynamics of human operator control systems using tactile feedback 297
PINKUS, O.
Counterrotating journal bearings 110
PIPELINES. *See also* WAVE MECHANICS
Surge pressures in liquid transfer lines 363
PISTONS. *See* HYDRAULIC MECHANISMS
PLASTICITY
Plastic analysis of the instability of pressure vessels subjected to internal pressure and axial load 278
PLATES. *See also* FLOW OF FLUIDS
Experimental investigation of the crack tip stress intensity factors in plates under cylindrical bending 542
PNEUMATIC DEVICES
Transient response of fluid lines 547
POLAK, E.
Minimum time control of second order pulse-width-modulated sampled-data systems 101
PORITSKY, H.
Note on the work done on the journal by the forces exerted by a compressible lubricant in a journal bearing 486
POWER PLANTS—NUCLEAR. *See* NUCLEAR FUELS
PRESSURE VESSELS
Design of pressure vessels for low-cycle fatigue 389
Plastic analysis of the instability of pressure vessels subjected to internal pressure and axial load 278
PULSE-WIDTH-MODULATION. *See* AUTOMATIC CONTROL, NONLINEAR SYSTEMS
PUMPS
Cavitation in turbopumps
Part 1 326
Part 2 339

R

RAMAMOORTHY, M. V.
Quadrant edge orifice performance—effect of upstream velocity distribution 415
RANDALL, P. N.
Cumulative damage in creep-rupture tests of a carbon steel (at elevated temperatures) 239
RANG, E. R.
Switching criterion for certain time-optimal regulating systems 30
REIMER, ROBERT M.
Design and calibration of the lo-loss tube (D) 469
Review of critical flowmeters for gas flow measurements (D) 458
RENTZEPIS, G. M.
On the stability of rotors in cylindrical journal bearings 521
RICHARDSON, H. H.
Preliminary study of whirl instability for pressurized gas bearings 511
Free oscillations with small nonlinear damping 413
RICHMOND, O.
Design of apparatus for constant-stress or constant-load creep tests 287
RINGLER, F. O.
Analysis of the vortex flow in the cyclone separator (D) 617
ROLLER BEARINGS. *See* ANTIFRICTION BEARINGS
ROSNER, DANIEL E.
Review of critical flowmeters for gas flow measurements (D) 458

(D) denotes Discussion of a paper.

ROSSHEIM, D. B.
Design of pressure vessels for low-cycle fatigue (D) ... 400
Influence of ductility on creep rupture under multiaxial stresses (at 1200 and 1400 F) (D) ... 232

ROTORS. *See also* BEARINGS
Investigation of whirl in externally pressurized air-lubricated journal bearings. 132
On the translatory whirl motion of a vertical rotor in plain cylindrical gas-dynamic journal bearings ... 152

ROULEAU, WILFRED T.
Note on the lubrication of porous metal bearings ... 205

RUPTURE. *See* METAL TESTING, METAL TESTING—CREEP

S

SAGI, C. J.
Flow regimes in curved subsonic diffusers (D) ... 314

SAIBEL, EDWARD
Nonlinear viscosity effects in slider bearing lubrication ... 192

SAMPLING SYSTEMS. *See* AUTOMATIC CONTROL

SARLAT, I. M.
Surge pressures in liquid transfer lines ... 363

SASAKI, TOKIO
Fluid lubrication theory of roller bearing.
Part I: Fluid lubrication theory for two rotating cylinders in contact ... 166
Part II: Fluid lubrication theory applied to roller bearing ... 175

SAWERT, W.
Influence of ductility on creep rupture under multiaxial stresses (at 1200 and 1400 F) ... 228

SCHAAB, KURT
Empirical creep law from a single test (D) ... 238

SCHLIEREN METHOD. *See* OPTICS

SCHULTZ, D. G.
On the periodic modes of oscillation in pulse-width-modulated feedback systems (D) ... 81

SEPARATORS. *See* CYCLONES

SEROVY, G. K.
Reconsideration of the annulus flow problem in axial turbomachinery (D) ... 586

SERVOMECHANISMS. *See* NONLINEAR SYSTEMS

SHAFER, MONTGOMERY R.
Performance characteristics of turbine flowmeters ... 471

SHERIDAN, T. B.
Dynamics of human operator control systems using tactile feedback ... 297

SIZE EFFECT. *See* METAL TESTING

SMITH, J. L., JR.
Analysis of the vortex flow in the cyclone separator ... 609
Experimental study of the vortex in the cyclone separator ... 602

SMITH, MARVIN N.
Effect of cavitation on the accuracy of Herschel-type venturi tubes (D) ... 360

SMITH, R. V.
Use of a venturi tube as a quality meter ... 411

SMITH, ROBERT E., JR.
Theoretical method of determining discharge coefficients for venturis operating at critical flow conditions ... 434

SNYDER, WILLIAM T.
Magnetohydrodynamic slider bearing ... 197

SODA, N.
Theoretical contributions to the study of gas-lubricated journal bearings ... 123

SPACE VEHICLES
Derived-rate increment stabilization: its application to the attitude control problem ... 54
Gyroscopic coupling in space vehicle attitude control systems ... 41

SPRING, BRADFORD
Quadrant edge orifice performance-effect of upstream velocity distribution ... 415

SRIDHAR, RANGASAMI
Effects of extra sinusoidal inputs to nonlinear systems (D) ... 569
Stability of a nonlinear feedback system in the presence of gaussian noise ... 61

STABILIZATION. *See* SPACE VEHICLES

STEEL
Cumulative damage in creep-rupture tests of a carbon steel (at elevated temperatures) ... 239

STEEL ALLOYS
Effect of a "V" notch on the tensile creep behavior of Cr-Mo steel ... 214
Notch rupture behavior as influenced by specimen size and preparation (at 1300 F) ... 222
Size effect on notched rupture time ... 220

STENNING, ALAN H.
Cavitation in turbopumps—Part 2 (D) ... 349

STERNLICHT, B.
On the stability of rotors in cyclindrical journal bearings ... 521
On the translatory whirl motion of a vertical rotor in plain cylindrical gas-dynamic journal bearings ... 152
Preliminary study of whirl instability for pressurized gas bearings (D) ... 518
Rotor-bearing dynamics with emphasis on attenuation ... 491

STRESSES AND STRAINS. *See also* METAL CREEP, METAL TESTING—CREEP
Crack propagation in aluminum-foil laminates ... 257
Cumulative fatigue damage with random loading ... 403
Deformation of uranium under constant load and cyclic temperature ... 294
Design of pressure vessels for low-cycle fatigue ... 389
Experimental investigation of the crack tip stress intensity factors in plates under cylindrical bending ... 542
Experimental support for generalized equation predicting low cycle fatigue ... 533

STRIPLING, L. B.
Cavitation in turbopumps
Part 1 ... 326
Part 2 ... 339

SUEZAWA, YOSHITADA
Effect of a "V" notch on the tensile creep behavior of Cr-Mo steel ... 214

SUN SENSORS
Derived-rate increment stabilization: its application to the attitude control problem ... 54

SURGES. *See* PIPELINES

SWITCHING CRITERIA. *See* AUTOMATIC CONTROL

SZEGÖ, G. P.
Contribution to Liapunov's second method: nonlinear autonomous systems ... 571

T

TACTILE SENSE. *See* PHYSIOLOGY

TANAKA, KICHINOSUKE
Effect of a "V" notch on the tensile creep behavior of Cr-Mo steel (D) ... 218

TANG, I. C.
Analytical and experimental study of externally pressurized air lubricated journal bearings (D) ... 165

TAVERNELLI, J. F.
Experimental support for generalized equation predicting low cycle fatigue ... 533

TESTING MACHINES
Design of apparatus for constant-stress or constant-load creep tests ... 287

THOMAN, R. J.
Rotor-bearing dynamics with emphasis on attenuation (D) ... 498

TITUS, H. A.
Optimum response of full third-order systems with contractor control ... 554

TU, YIH-O
Viscosity and boundary effects in the dynamic behavior of hydraulic systems (pistons) ... 593

TUBES
Effect of radial heat transfer on the creep behavior of thick-walled tubes loaded by combined bending moment and internal pressure ... 412

TUNCEL, OSCAN
Experimental investigation of the crack tip stress intensity factors in plates under cylindrical bending ... 542

TURBOMACHINERY. *See also* PUMPS
Reconsideration of the annulus flow problem in axial turbomachinery ... 579

TURBULENCE. *See* LUBRICATION

TURGEON, N.
Flow regimes in curved subsonic diffusers (D) ... 314

U

UEMURA, MASUJI
Effect of a "V" notch on the tensile creep behavior of Cr-Mo steel (D) ... 218

URANIUM
Deformation of uranium under constant load and cyclic temperature ... 294

V

VENTURI TUBES. *See* FLUID METERS

VIBRATION
Free oscillations with small nonlinear damping ... 413
On the translatory whirl motion of a vertical rotor in plain cylindrical gas-dynamic journal bearings ... 152

VISCOSITY
Nonlinear viscosity effects in slider bearing lubrication ... 192
Viscosity and boundary effects in the dynamic behavior of hydraulic systems (pistons) ... 593

VIVIAN, H. C.
Derived-rate increment stabilization: its application to the attitude control problem ... 54

VOORHEES, H. R.
Influence of ductility on creep rupture under multiaxial stresses (at 1200 and 1400 F) ... 228
Notch rupture behavior as influenced by specimen size and preparation (at 1300 F) (D) ... 227
Notched-bar creep rupture of a cast heat-resistant alloy at temperatures where ductility is limited ... 233
Trends and implications of data on notched-bar creep rupture ... 207

VORTEXES. *See also* FLOW OF FLUIDS, HYDRODYNAMICS
Flow over an inclined plate ... 380

W

WANG, P. K. C.
Stability of a nonlinear feedback system in the presence of gaussian noise (D) ... 69

WARNER, PAUL C.
Rotor-bearing dynamics with emphasis on attenuation (D) ... 498

WATER TUNNELS
Schlieren method applied to flow visualization in a water tunnel ... 587

WATSON, J. F.
Low-temperature properties of K-Monel, Inconel-X, René 41, Haynes 25, and Hastelloy B sheet alloys ... 265

WAUGH, CHARLES C.
Performance characteristics of turbine flowmeters (D) ... 484

WAVE MECHANICS
Transient response of fluid lines ... 547
Viscosity and boundary effects in the dynamic behavior of hydraulic systems (pistons) ... 593

WEISSENBERGER, S.
Dynamics of human operator control systems using tactile feedback ... 297

WELDED JOINTS
Low-temperature properties of K-Monel, Incone-X, René 41, Haynes 25, and Hastelloy B sheet alloys ... 265

WERGIN, P. C.
Use of a venturi tube as a quality meter ... 41

WHEELER, K. B.
Deformation of uranium under constant load and cyclic temperature ... 294

WHIRL. *See* BEARINGS, ROTORS

WILCOX, WARD W.
Cavitation in turbopumps—Part 2 (D) ... 349

WILSON, T. L.
Surge pressures in liquid transfer lines ... 363

WING, J.
Optimal control methods for on-off sampling systems (D) ... 99

WOOD, GLENN M.
Cavitation in turbopumps—Part 2 (D) ... 349

Z

ZADEH, L. A.
Optimal pursuit strategies in discrete-state probabilistic systems ... 23

ZARETSKY, E. V.
Toroid contact roller test as applied to the study of bearing materials (D) ... 190

ZWIEBACK, EDGAR L.
Performance characteristics of turbine flowmeters (D) ... 484

(D) denotes Discussion of a paper.